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ROSE CANKER

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Rose bush mortality in Florida is extremely high, and this is due largely to the prevalence of canker diseases. Only too frequently rose gardeners set healthy, vigorous bushes which quickly develop variously colored cankers below the cut ends and on other portions of the canes. Despite severe cutting back to remove them, these diseased parts persist and spread upward or downward along the canes until the plant is destroyed after two or three years. Although rose canker diseases are only partially known, several types have been described, including brown canker, crown canker, stem canker, brand canker, and cane blight. Of these, brown canker has received the most study, and since other canker diseases have many points in common with brown canker, this will be described as the typical canker disease.

Brown canker has been observed on about 175 varieties of roses, including Teas, Hybrid Teas, Hybrid Perpetuals, Pernetianas, Bengal or China roses, Hybrid Sweetbriers, Dwarf Polyanthas, Tea Polyanthas, Multiflora Hybrids, Wichuraiana Hybrids, Noisettes, and Noisette Hybrids. Rugosa, Moss and Brier roses appear to be resistant or immune to the disease.

CAUSE

Canker is caused by a parasitic fungus*. Like other fungous diseases, canker is spread by spores of the causal fungus. Moisture and other environmental conditions being favorable, these spores soon germinate on the leaves, stems, or blossoms of the rose plant, penetrate within, and cause a dead spot. After development for a time in the rose tissue, resulting in the destruction of invaded cells, the fungus produces more or less spherical fruiting structures within which large quantities of spores are formed. These are forced to the surface and are carried to other parts of the plant or adjacent plants by wind, rain, pruning shears, and other agencies. Here they start new infections.

SYMPTOMS

In the case of most varieties, first signs of infection consist of purple to white spots on the canes and small, dark gray, circular spots on the leaves. The small cane lesions (spots) are usually slightly raised, circular, purple in color, and quite superficial. Later they become grayish-white, and when large numbers of these tiny spots are massed together, a whitish patch is produced. Sometimes little damage results the first year. Eventually, however, the superficial, white-colored lesions become sur-

*Brown canker is caused by *Diaporthe umbrina* Jenkins. Other canker diseases are caused by different fungi.

rounded by a purple margin which continues to enlarge, leaving a brown, dead area behind. In time the cane is girdled and destroyed. Cankers may extend for several inches down the canes, and upon reaching the crown destroy other canes or even the entire plant.

Foliage and bloom are attacked. Leaf infections vary a great deal in appearance, depending upon the type of rose. On some types of roses the spots are much like those on the canes, purple with or without white centers. Reddish spotting is typical for the Polyantha varieties, and on Hybrid Teas and Perpetuals dark gray, circular spots are produced on the upper surface of the leaves. Usually only the outer petals of blossoms are infected. Diseased petals become tan or brown-colored, and are dotted with the fruiting bodies of the fungus.

CONTROL

Careful selection of disease-free planting stock, the prompt removal and burning of all dead or cankered wood as well as old blossoms, and the frequent application of a suitable fungicide are the essential measures in rose canker control. Newly received plants should be examined critically for stem cankers and lesions, and all diseased plants should be rejected. Since canker is difficult to combat, a single infected plant may be a serious menace to other plants situated nearby. In the removal of dead or diseased wood, cuts should be made well below the diseased areas, since the tissues actually invaded extend beyond the part noticeably affected. The pruning shears or other instruments should be dipped in some sterilizing solution, as formaldehyde or alcohol, before each cut is made. Also, since many cankers originate with pruning wounds, coating the cut surface with a protective fungicide immediately after the bushes have been pruned is highly desirable. Spraying or dusting the bushes will provide protection, but where the cut ends of canes are large, paint or some other tree wound dressing should be applied.

Canker may not be eradicated by casual procedures, but only by rigid adherence to an approved control plan. Such a plan calls for the use of either copper or sulfur sprays or dusts which adhere well to the canes and foliage. The selected fungicide must be applied frequently, particularly during early spring and other periods of active growth, as well as during rainy or foggy weather. Applications from 5 to 7 days apart are sometimes required, although from 10 days to 2 weeks apart usually is sufficient. Where little or no canker is present in the planting, frequent applications are necessary only during the more critical seasons of the year. To be effective, all portions of the plants must be coated thoroughly with the fungicide.

If a dust type of fungicide is preferred, one of the more adhesive, finely-divided sulfur dusts should be used. Dusts similar to flowers of sulfur are of little value in canker control; high grade dusting sulfurs particularly commended for their adhesive qualities are required. They may be obtained in either yellow or green colored form. Several of the liquids have proved effective, including colloidal sulfur compounds as well as bordeaux mixture. They adhere better with ordinary flour added at the rate of 2 ounces per gallon of spray. These liquid preparations stain the foliage rather badly, but as blossoming time approaches ammoniacal copper carbonate, a less effective but stainless material, may be substituted. Applications may be made on either dry or moist foliage.